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Detection of micrometastasis through tissue-specific gene expression: its promise and problems.

Jung R, Soondrum K, Kruger W, Neumaier M.

Department of Clinical Chemistry, University Clinic Hamburg-Eppendorf, Germany.

The detection of micrometastasis holds great promise for earlier staging of patients with malignant diseases and may ultimately guide therapeutic decisions. So far, reverse-transcriptase polymerase chain reaction (RT-PCR) amplification of genes expressed by the tumor in a tissue-specific manner is the method with the highest diagnostic sensitivity. It is well-established that the identification of single tumor cells is feasible in tissues and bodily fluids in both experimental and clinical samples. However, at present it is difficult to assign clinical significance to results obtained from such tests, primarily because their diagnostic specificity is disputed, both conceptionally and methodologically. For example, amplification of candidate mRNA targets is detectable in non-cancer patients using conditions that generally fail to generate such signals from healthy individuals. We have established that transcription of the tissue-specific genes can be affected by different means. Specifically, some target mRNA species are detectable in peripheral blood nuclear cells as low abundance constitutive-like expression, whereas others are induced through in vitro tissue culturing. In addition, mRNA expression may be distinctly upregulated by different cytokines or growth factors in vivo. Also, background transcription of target mRNAs can occur in different lineages of peripheral blood cells. Finally, expression may be substantially different in tissues such as peripheral blood, bone marrow, or lymph nodes. As a consequence, cancer patients in unrelated clinical situations may present with different levels of background expression, making the diagnostic specificity of test results difficult to assess. To add to this complexity, an increasing body of literature is being generated using various targets for a multitude of malignant diseases. There is a great variety of methods for sampling, specimen processing, nucleic acids recovery, test conditions, and readout formats, making it impossible to compare data. In summary, modalities of quantitative RT-PCR methods and standardization issues should be discussed to address these questions.

2/3/2 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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12911873 BIOSIS NO.: 200100119022

Isolation of a novel human lung- specific gene, LUNX, a potential molecular marker for detection of micrometastasis in non-small-cell lung cancer.

AUTHOR: Iwao Kyoko; Watanabe Takashi; Fujiwara Yoshiyuki(a); Takami Koji; Kodama Ken; Higashiyama Masahiko; Yokouchi Hideki; Ozaki Kouichi; Monden Morito; Tanigami Akira

AUTHOR ADDRESS: (a)Department of Surgery and Clinical Oncology, Graduate School of Medicine, Osaka University, 2-2 Yamada-Oka, Suita City, Osaka, 565-0871: fujiwara@surg2.med.osaka-u.ac.jp**Japan

JOURNAL: International Journal of Cancer 91 (4):p433-437 February 15, 2001

MEDIUM: print

ISSN: 0020-7136

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

2/3/3 (Item 3 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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12516792 BIOSIS NO.: 200000270294

Isolation of a novel human lung- specific gene, LUNX, a potential molecular marker for detection of micrometastasis in non-small cell lung cancer.

AUTHOR: Fujiwara Yoshiyuki(a); Iwao Kyoko; Tanigami Akira; Takami Koji; Monden Morito; Shiozaki Hitoshi; Yano Masahiko; Inoue Masatomo; Doki Yuuichiro

AUTHOR ADDRESS: (a)Osaka Med Ctr for Cancer and CV Diseases, Saka**Japan

JOURNAL: Proceedings of the American Association for Cancer Research Annual Meeting (41):p691 March, 2000

MEDIUM: print.

CONFERENCE/MEETING: 91st Annual Meeting of the American Association for Cancer Research. San Francisco, California, USA April 01-05, 2000

ISSN: 0197-016X

RECORD TYPE: Citation

LANGUAGE: English

SUMMARY LANGUAGE: English

2/3/4 (Item 4 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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11624203 BIOSIS NO.: 199800406449

Isolation and characterization of a novel human lung- specific gene homologous to lysosomal membrane glycoproteins 1 and 2: Significantly increased expression in cancers of various tissues.

AUTHOR: Ozaki Kouichi(a); Nagata Masami; Suzuki Mikio; Fujiwara Tsutomu; Ueda Kazuki; Miyoshi Yasuo; Takahashi Ei-Ichi; Nakamura Yusuke

AUTHOR ADDRESS: (a)Otsuka GEN Res. Inst., Otsuka Pharm. Co. Ltd., 463-10 Kagasuno Kawauchi-cho, Tokushima 771-0192**Japan

JOURNAL: Cancer Research 58 (16):p3499-3503 Aug. 15, 1998

ISSN: 0008-5472

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

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DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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08183093 Genuine Article#: 255HH No. References: 27

Title: Isolation and mapping of a human lung- specific gene, TSA1902, encoding a novel chitinase family member

Author(s): Saito A; Ozaki K; Fujiwara T; Nakamura Y; Tanigami A (REPRINT)

Corporate Source: OTSUKA PHARMACEUT CO LTD, OTSUKA GEN RES INST, 463-10

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CO LTD, OTSUKA GEN RES INST/KAWAUCHI/TOKUSHIMA 7710192/JAPAN/; UNIV
TOKYO, INST MED SCI, CTR HUMAN GENOME, MOL MED LAB/TOKYO 1080071//JAPAN/
Journal: GENE, 1999, V239, N2 (NOV 1), P325-331
ISSN: 0378-1119 Publication date: 19991101
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)
2/3/7 (Item 1 from file: 357)
DIALOG(R)File 357:Derwent Biotechnology Abs
(c) 2001 Derwent Publ Ltd. All rts. reserv.

0251526 DBA Accession No.: 2000-06016 PATENT
Lung specific genes for developing products for diagnosing,
monitoring, staging, prognosticating, imaging and treating lung
cancer - lung- specific- gene specific antibody, used to detect
lung specific gene expression in non-lung tissue, used to detect
and treat lung cancer metastasis
AUTHOR: Yang F; Sun Y; Recipon H; Macina R A
CORPORATE SOURCE: Santa Clara, CA, USA.
PATENT ASSIGNEE: Diadexus 2000
PATENT NUMBER: WO 200008206 PATENT DATE: 20000217 WPI ACCESSION NO.:
2000-195589 (2017)
PRIORITY APPLIC. NO.: US 95233 APPLIC. DATE: 19980804
NATIONAL APPLIC. NO.: WO 99US16247 APPLIC. DATE: 19990719
LANGUAGE: English
2/3/8 (Item 2 from file: 357)
DIALOG(R)File 357:Derwent Biotechnology Abs
(c) 2001 Derwent Publ Ltd. All rts. reserv.

0249851 DBA Accession No.: 2000-04341 PATENT
A new method for diagnosis, monitoring, and staging lung cancer -
involving determining the level of lung specific gene
AUTHOR: Yang F; Macina R A; Sun Y
CORPORATE SOURCE: Santa Clara, CA, USA.
PATENT ASSIGNEE: Diadexus 1999
PATENT NUMBER: WO 9960160 PATENT DATE: 19991125 WPI ACCESSION NO.:
2000-116320 (2010)
PRIORITY APPLIC. NO.: US 86212 APPLIC. DATE: 19980521
NATIONAL APPLIC. NO.: WO 99US10344 APPLIC. DATE: 19990512
LANGUAGE: English

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AUTHOR ADDRESS: (a)Department of Surgery and Clinical Oncology, Graduate School of Medicine, Osaka University, 2-2 Yamada-Oka, Suita City, Osaka, 565-0871: fujiwara@surg2.med.osaka-u.ac.jp**Japan

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CORPORATE SOURCE: Santa Clara, CA, USA.
PATENT ASSIGNEE: Diadexus 1999
PATENT NUMBER: WO 9960160 PATENT DATE: 19991125 WPI ACCESSION NO.:
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PRIORITY APPLIC. NO.: US 86212 APPLIC. DATE: 19980521
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Morito; Tanigami Akira
AUTHOR ADDRESS: (a) Department of Surgery and Clinical Oncology, Graduate
School of Medicine, Osaka University, 2-2 Yamada-Oka, Suita City, Osaka,
565-0871: fujiwara@surg2.med.osaka-u.ac.jp**Japan
JOURNAL: International Journal of Cancer 91 (4):p433-437 February 15, 2001
MEDIUM: print
ISSN: 0020-7136
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English
SUMMARY LANGUAGE: English

ABSTRACT: We have isolated a novel human lung-specific gene, LUNX
(lung-specific X protein), by differential-display mRNA analysis. The
full-length cDNA contained 1,015 nucleotides including an open reading
frame of 768 nucleotides encoding 256 amino acids. We localized the gene
to chromosomal region 20p11.1-q12 by radiation hybrid mapping. Using an

RT-PCR assay specific for LUNX mRNA, 35 non-small-cell lung -cancer (NSCLC) tumors and 0 of 16 normal lymph nodes were positive. Furthermore, LUNX mRNA expression was enhanced in 26 (84%) of 31 NSCLC tumors vs. corresponding cancer -free lung tissues by semi-quantitative analyses with multiplex RT-PCR. We assessed the possibility of LUNX mRNA as a molecular marker for detection of micrometastasis in dissected lymph nodes obtained from 20 patients with NSCLC tumors. LUNX mRNA was detected in 16 (80%) of 20 histologically positive lymph nodes and 21 (25%) of 84 histologically negative lymph nodes. Comparative analyses of the conventional histological examination and the RT-PCR detection assay for LUNX mRNA showed that the detection rate of metastases in lymph nodes by the RT-PCR assay was higher in 12 and consistent in 6 of the total 20 NSCLC patients. We demonstrate that the LUNX RT-PCR assay is a potential diagnostic method for detection of micrometastases in lymph nodes of NSCLC patients.

DESCRIPTORS:

MAJOR CONCEPTS: Clinical Chemistry (Allied Medical Sciences); Medical Genetics (Allied Medical Sciences); Oncology (Human Medicine, Medical Sciences); Pulmonary Medicine (Human Medicine, Medical Sciences)
BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGANISMS: human (Hominidae)--patient

ORGANISMS: PARTS ETC: chromosome 20--location p11.1, location q12

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Animals; Chordates; Humans; Mammals; Primates; Vertebrates

DISEASES: non-small cell lung cancer --neoplastic disease, respiratory system disease

GENE NAME: human LUNX gene (Hominidae)--isolation, lung -specific gene

METHODS & EQUIPMENT: RT-PCR {reverse transcriptase-polymerase chain reaction}--gene amplification method; radiation hybrid mapping--analytical method

ALTERNATE INDEXING: Lung Neoplasms (MeSH); Carcinoma, Non-Small-Cell Lung (MeSH)

CONCEPT CODES:

16006 Respiratory System-Pathology
03508 Genetics and Cytogenetics-Human
10006 Clinical Biochemistry; General Methods and Applications
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
24004 Neoplasms and Neoplastic Agents-Pathology; Clinical Aspects; Systemic Effects

2/9/2 (Item 2 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)

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12516792 BIOSIS NO.: 200000270294

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AUTHOR: Fujiwara Yoshiyuki(a); Iwao Kyoko; Tanigami Akira; Takami Koji; Monden Morito; Shiozaki Hitoshi; Yano Masahiko; Inoue Masatomo; Doki Yuuichiro

AUTHOR ADDRESS: (a)Osaka Med Ctr for Cancer and CV Diseases, Saka**Japan

JOURNAL: Proceedings of the American Association for Cancer Research Annual Meeting (41):p691 March, 2000

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ISSN: 0197-016X

RECORD TYPE: Citation

LANGUAGE: English

SUMMARY LANGUAGE: English

DESCRIPTORS:

MAJOR CONCEPTS: Molecular Genetics (Biochemistry and Molecular Biophysics); Oncology (Human Medicine, Medical Sciences)

BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGANISMS: human (Hominidae)--patient
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Animals; Chordates; Humans;
Mammals; Primates; Vertebrates
DISEASES: non-small cell **lung cancer** --lymph node micrometastasis
detection, neoplastic disease, respiratory system disease
CHEMICALS & BIOCHEMICALS: lung-specific X protein gene {LUNX gene}
(Hominidae)--isolation, potential molecular diagnostic marker
MISCELLANEOUS TERMS: Meeting Abstract
ALTERNATE INDEXING: Lung **Neoplasms** (MeSH); Carcinoma, Non-Small-Cell
Lung (MeSH)
CONCEPT CODES:
03508 Genetics and Cytogenetics-Human
12504 Pathology, General and Miscellaneous-Diagnostic
16006 Respiratory System-Pathology
24004 Neoplasms and Neoplastic Agents-Pathology; Clinical Aspects;
Systemic Effects
24001 Neoplasms and Neoplastic Agents-Diagnostic Methods
00520 General Biology-Symposia, Transactions and Proceedings of
Conferences, Congresses, Review Annuals
BIOSYSTEMATIC CODES:
86215 Hominidae
2/9/3 (Item 3 from file: 5)
DIALOG(R) File 5:Biosis Previews(R)
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11624203 BIOSIS NO.: 199800406449

Isolation and characterization of a novel human lung-specific gene homologous to lysosomal membrane glycoproteins 1 and 2: Significantly increased expression in cancers of various tissues.

AUTHOR: Ozaki Kouichi(a); Nagata Masami; Suzuki Mikio; Fujiwara Tsutomu;
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AUTHOR ADDRESS: (a)Otsuka GEN Res. Inst., Otsuka Pharm. Co. Ltd., 463-10
Kagasuno Kawauchi-cho, Tokushima 771-0192**Japan

JOURNAL: Cancer Research 58 (16):p3499-3503 Aug. 15, 1998

ISSN: 0008-5472

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: We have isolated and characterized a novel human **lung-specific gene** and observed its increased expression in **cancers** arising from various tissues. The cDNA, designated TSC403, contained an open reading frame of 1248 nucleotides encoding 416 amino acids; the deduced amino acid sequence showed significant similarities to lysosomal membrane glycoproteins (lamps) 1 and 2. We localized the gene to chromosomal band 3q27, a genomic region that is often amplified in human **cancers** of several tissue types. We detected a high level of the TSC403 transcript in primary **cancers** of the esophagus, colon, fallopian tube, ovary, breast, and liver, although expression of this gene was barely detectable in corresponding normal tissues. These findings indicated that up-regulation of the TSC403 transcript may be related to the development and/or progression of **cancer** in humans.

DESCRIPTORS:

MAJOR CONCEPTS: Molecular Genetics (Biochemistry and Molecular Biophysics); Tumor Biology

BIOSYSTEMATIC NAMES: Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGANISMS: human (Hominidae)--patient

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Animals; Chordates; Humans; Mammals; Primates; Vertebrates

DISEASES: breast **cancer** --neoplastic disease, reproductive system disease/female, tumor progression, tumor development; colon **cancer** --digestive system disease, tumor progression, tumor development, neoplastic disease; esophageal **cancer** --digestive system disease, tumor progression, tumor development, neoplastic disease; fallopian tube **cancer** --neoplastic disease, tumor progression, tumor development, reproductive system disease/female; liver **cancer** --digestive system

disease, tumor development, tumor progression, neoplastic disease;
ovarian **cancer** --endocrine disease/gonads, tumor development,
reproductive system disease/female, tumor progression, neoplastic
disease

CHEMICALS & BIOCHEMICALS: TSC-403 lung -specific gene --amino acid
sequence, chromosome band 3q27 localization, lysosomal membrane
glycoprotein 2 homology, lysosomal membrane glycoprotein 1 homology,
tumor expression, nucleotide sequence

CONCEPT CODES:

24007 Neoplasms and Neoplastic Agents-Carcinogens and Carcinogenesis
03508 Genetics and Cytogenetics-Human
10508 Biophysics-Membrane Phenomena
13004 Metabolism-Carbohydrates
13012 Metabolism-Proteins, Peptides and Amino Acids
14006 Digestive System-Pathology
16506 Reproductive System-Pathology
17006 Endocrine System-Gonads and Placenta
24006 Neoplasms and Neoplastic Agents-Biochemistry
02508 Cytology and Cytochemistry-Human
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10068 Biochemical Studies-Carbohydrates
10506 Biophysics-Molecular Properties and Macromolecules

BIOSYSTEMATIC CODES:

86215 Hominidae

2/9/4 (Item 1 from file: 34)

DIALOG(R) File 34:SciSearch(R) Cited Ref Sci

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08183093 Genuine Article#: 255HH Number of References: 27

Title: Isolation and mapping of a human lung- specific gene, TSA1902,
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Author(s): Saito A; Ozaki K; Fujiwara T; Nakamura Y; Tanigami A (REPRINT)

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KAGASUNO/KAWAUCHI/TOKUSHIMA 7710192/JAPAN/ (REPRINT); OTSUKA PHARMACEUT
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Journal: GENE, 1999, V239, N2 (NOV 1), P325-331

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Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Language: English Document Type: ARTICLE

Geographic Location: JAPAN

Subfile: CC LIFE--Current Contents, Life Sciences

Journal Subject Category: GENETICS & HEREDITY

Abstract: Using differential display technique, we have isolated a novel
human gene expressed specifically in the lung. Two forms of the gene,
designated TSA1902, were transcribed by alternate mRNA splicing. The
transcribed mRNAs, termed TSA1902-L and TSA1902-S, putatively encode
proteins of 368 and 315 amino acids, respectively, which show high
similarity to human chitotriosidase protein. The N-terminal region of
TSA1902-L protein contains the conserved active site residues
(DXXDXDXE) of the catalytic center of various chitinases which are
essential for chitinase activity. The deduced protein sequence of
TSA1902-S, however, does not possess this active site, with the
N-terminal 54 amino acids present in TSA1902-L protein having been
deleted. Both proteins lacked the secretory sequence of N-termini and,
judging from the hydropathy profile, may be soluble proteins in the
cytoplasm. Chromosomal mapping by radiation hybrid analysis localized
this gene to the chromosome 1p13.1-p21.3. (C) 1999 Elsevier Science
B.V. All rights reserved.

Descriptors--Author Keywords: chitinase ; lung -specific gene ;
differential display

Identifiers--KeyWord Plus(R): BACILLUS-CIRCULANS WL-12; MOLECULAR-CLONING;
PROTEIN FAMILY; MESSENGER-RNA; CHITOTRIOSIDASE; GLYCOPROTEIN;
MACROPHAGES; RESIDUES; DISPLAY; **CANCER**

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2/9/5 (Item 1 from file: 65)

DIALOG(R)File 65:Inside Conferences

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02695836 INSIDE CONFERENCE ITEM ID: CN028054696

Isolation and characterization of a novel human lung-specific gene homologous to lysosomal membrane glycoproteins 1 and 2 -Increased expression in various cancers

Ozaki, K.; Suzuki, M.; Fujiwara, T.; Ueda, K.

CONFERENCE: Cancer genetics & tumor suppressor genes-Meeting

ABSTRACTS OF PAPERS PRESENTED AT THE MEETING ON CANCER GENETICS AND TUMOR SUPPRESSOR GENES, 1998 P: 176

Cold Spring Harbor Laboratory, 1998

LANGUAGE: English DOCUMENT TYPE: Conference Abstracts and programme

CONFERENCE SPONSOR: Cold Spring Harbor Laboratory

CONFERENCE LOCATION: Cold Spring Harbor, NY

CONFERENCE DATE: Aug 1998 (199808) (199808)

BRITISH LIBRARY ITEM LOCATION: 0566.578592

DESCRIPTORS: **cancer** genetics; tumor suppressor genes; CSH

2/9/7 (Item 1 from file: 357)

DIALOG(R)File 357:Derwent Biotechnology Abs

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0251526 DBA Accession No.: 2000-06016 PATENT

Lung specific genes for developing products for diagnosing, monitoring, staging, prognosticating, imaging and treating lung cancer - lung - specific- gene specific antibody, used to detect lung specific gene expression in non-lung tissue, used to detect and treat lung cancer metastasis

AUTHOR: Yang F; Sun Y; Recipon H; Macina R A

CORPORATE SOURCE: Santa Clara, CA, USA.

PATENT ASSIGNEE: Diadexus 2000

PATENT NUMBER: WO 200008206 PATENT DATE: 20000217 WPI ACCESSION NO.: 2000-195589 (2017)

PRIORITY APPLIC. NO.: US 95233 APPLIC. DATE: 19980804

NATIONAL APPLIC. NO.: WO 99US16247 APPLIC. DATE: 19990719

LANGUAGE: English

ABSTRACT: A means of diagnosing **lung cancer**, involving measuring the expression of lung specific genes in cells, tissues or bodily fluids, is claimed. Levels are then compared with levels in normal tissues. Also claimed is a means of staging or monitoring changes in **lung**

cancer in a patient, an antibody specific to a lung specific gene with a given 1,016 or 597 bp DNA sequence, and a means of imaging a lung cancer in a patient using that antibody. These are used for diagnosis, monitoring, staging and prognosing lung cancer, especially lung cancer metastasis. The antibodies can be linked to a cytotoxic agent and used in lung cancer metastasis therapy. It is particularly used to detect new metastasis of lung cancer by periodically determining the level of lung specific gene expression in cells, tissues or bodily fluids. Positive results are characterized by lung specific gene expression at at least 2 times, preferably five times higher than in normal non-lung tissue. The given DNA sequences correspond to Lngl09 (597 bp) and Lngl10 (1,016 bp). Lngl09 has a relative expression of 46.6 in lungs, with only testis (12.1) and brain (26.6) showing considerable levels of expression. (37pp)

DESCRIPTORS: lung -specific gene specific antibody, gene expression detection, polymerase chain reaction, in situ hybridization, appl. lung metastasis, cancer diagnosis, imaging, monitoring, prognosis, pot. therapy DNA sequence tumor DNA amplification(Vol.19, No.11)

SECTION: PHARMACEUTICALS-Antibodies; PHARMACEUTICALS-Clinical Genetic Techniques; GENETIC ENGINEERING AND FERMENTATION-Nucleic Acid Technology (D6,D7,A1)

2/9/8 (Item 2 from file: 357)

DIALOG(R) File 357:Derwent Biotechnology Abs

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0249851 DBA Accession No.: 2000-04341 PATENT

A new method for diagnosis, monitoring, and staging lung cancer - involving determining the level of lung specific gene

AUTHOR: Yang F; Macina R A; Sun Y

CORPORATE SOURCE: Santa Clara, CA, USA.

PATENT ASSIGNEE: Diadexus 1999

PATENT NUMBER: WO 9960160 PATENT DATE: 19991125 WPI ACCESSION NO.:

2000-116320 (2010)

PRIORITY APPLIC. NO.: US 86212 APPLIC. DATE: 19980521

NATIONAL APPLIC. NO.: WO 99US10344 APPLIC. DATE: 19990512

LANGUAGE: English

ABSTRACT: Diagnosis of lung cancer in a patient involves measuring Lung specific gene (LSG) levels in a cell, tissue or body fluid sample of the patient and a control, whereby increased LSC levels in the patient compared to the control are associated with the presence of lung cancer. Also claimed are: diagnosis of lung cancer metastasis in a patient involving measuring LSG levels; staging lung cancer in a patient involving identifying a patient with lung cancer, involving measuring LSG levels in a cell, tissue or body fluid and comparing levels with those of a control; monitoring lung cancer in a patient for the onset of metastasis; and monitoring changes in a state of lung cancer in a patient, involving identifying a patient as having lung cancer, periodically measuring LSG levels in a cell, tissue or body fluid sample, and comparing levels with a sample from a control. The method can give a prognosis of lung cancer. The method is more accurate than prior art clinical methods for staging lung cancer and unlike pathological staging methods does not depend upon invasive procedure. (24pp)

DESCRIPTORS: lung cancer diagnosis, staging, monitoring, prognosis, lung specific gene level det. in cell, tissue, body fluid tumor (Vol.19, No.8)

SECTION: PHARMACEUTICALS-Clinical Genetic Techniques; GENETIC ENGINEERING AND FERMENTATION-Nucleic Acid Technology (D7,A1)

0242517 DBA Accession No.: 1999-13282 PATENT

Human lung-specific gene TSC430 overexpressed in cancer tissue, used for the treatment of e.g. colon cancer - TSC430 lung and cancer cell-associated protein and ING1L, a tumor suppressor, useful in the diagnosis and therapy of a range of cancer types

AUTHOR: Nagata M; Ozaki K; Shimada Y; Horie M

CORPORATE SOURCE: Tokyo, Japan.

PATENT ASSIGNEE: Otsuka-Pharm. 1999

PATENT NUMBER: WO 9940190 PATENT DATE: 19990812 WPI ACCESSION NO.:

1999-494294 (1941)

PRIORITY APPLIC. NO.: JP 98134679 APPLIC. DATE: 19980428

NATIONAL APPLIC. NO.: WO 99JP419 APPLIC. DATE: 19990202

LANGUAGE: Japanese

ABSTRACT: A human TSC403 gene (I) expressed in normal lung tissues and in various **cancer** cell cultures, and a second gene, a human tumor suppressor gene INGL1 (II) involved in regulation of the cell cycle and also cell proliferation, are claimed. Also new are: variants and antisense sequences of (I) and (II); (I) and (II)-derived DNA probes and DNA primers useful for diagnosing **cancer**; kits comprising the DNA probes and DNA primers; proteins produced from the expression of (I) and (II); and antibodies specific for these proteins. (I) is useful for the diagnosis and therapy of e.g. **lung cancer**, **mamma cancer**, **fallopian tube cancer**, **oesophagus cancer**, **colon cancer**, **parotid gland cancer**, **thyroid cancer**, **bladder cancer**, **ovary cancer** or **pancreas cancer**. (II) is useful for the diagnosis and therapy of **colon cancer**, **stomach cancer**, **oesophagus cancer** and **fallopian tube cancer**, and also for studying cell aging, and clarifying disease pathology. Both (I) and (II) are also useful in drug screening. (99pp)

DESCRIPTORS: human **lung**, **cancer** cell-associated TSC403 prep., INGL1 tumor suppressor prep., DNA probe, DNA primer, antisense, appl. e.g. **ovary cancer**, **fallopian tube cancer**, **lung cancer**, **pancreas cancer**, **oesophagus cancer**, **colon cancer** diagnosis, therapy, drug screening mammal animal DNA sequence protein sequence hybridization DNA amplification tumor (Vol.18, No.23)

SECTION: PHARMACEUTICALS-Peptides and Proteins; PHARMACEUTICALS-Clinical Genetic Techniques; GENETIC ENGINEERING AND FERMENTATION-Nucleic Acid Technology (D3,D7,A1)

2/9/11 (Item 2 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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134247987 CA: 134(18)247987q PATENT

Human lung-specific gene, LUNX, a potential molecular marker for detection of micrometastasis in non-small-cell lung cancer

INVENTOR(AUTHOR): Monden, Morito; Fujiwara, Yoshiyuki; Watanabe, Takashi; Ozaki, Koichi

LOCATION: Japan,

ASSIGNEE: Ohtsuka Pharmaceutical Co., Ltd.

PATENT: Japan Kokai Tokkyo Koho; JP 200178772 A2 DATE: 20010327

APPLICATION: JP 99253186 (19990907)

PAGES: 30 pp. CODEN: JKXXAF LANGUAGE: Japanese CLASS: C12N-015/09A; C07K-014/82B; C07K-016/32B; C12N-001/15B; C12N-001/19B; C12N-001/21B; C12N-005/10B; C12Q-001/68B; G01N-033/15B; G01N-033/50B; G01N-033/566B; G01N-033/574B; A61K-031/713B; A61K-035/12B; A61K-035/76B; A61K-039/395B; A61K-048/00B; A61P-035/00B; A61P-035/04B; C12P-021/08B

SECTION:

CA203003 Biochemical Genetics

CA206XXX General Biochemistry

CA214XXX Mammalian Pathological Biochemistry

IDENTIFIERS: human lung gene LUNX marker micrometastasis non-small cell cancer, gene LUNX cDNA sequence human

DESCRIPTORS:

Diagnosis...

cancer; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer

Intestine,neoplasm...

colorectal, LUNX expression in; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer

Antibodies... cDNA sequences... Genetic mapping... Genetic markers...

Gene,animal... Molecular cloning... Probes(nucleic acid)... Protein sequences... Test kits...

human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer

Chromosome...

human 20; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer

Proteins,specific or class...
 LUNX (lung-specific X protein); human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer

Liver,neoplasm...
 LUNX expression in; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer

Esophagus... Mammary gland...
 neoplasm, LUNX expression in; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer

Lung,neoplasm...
 non-small-cell carcinoma, metastasis; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer

CAS REGISTRY NUMBERS:
 218438-77-8P amino acid sequence; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer
 229162-20-3 261336-84-9 nucleotide sequence; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer
 174068-42-9 244778-14-1 330693-00-0 330693-01-1 330693-02-2 330693-03-3 330693-04-4 330693-05-5 unclaimed nucleotide sequence; human lung-specific gene, LUNX, a potential mol. marker for detection of micrometastasis in non-small-cell lung cancer
 2/9/12 (Item 3 from file: 399)
 DIALOG(R)File 399:CA SEARCH(R)
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132001796 CA: 132(1)1796v PATENT
A novel method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
 INVENTOR(AUTHOR): Macina, Roberto A.; Yang, Fei; Sun, Yongming
 LOCATION: USA
 ASSIGNEE: Diadexus Llc
 PATENT: PCT International ; WO 9960161 A1 DATE: 19991125
 APPLICATION: WO 99US10498 (19990512) *US 86266 (19980521)
 PAGES: 47 pp. CODEN: PIXXD2 LANGUAGE: English CLASS: C12Q-001/68A;
 G01N-033/53B; G01N-033/574B DESIGNATED COUNTRIES: CA; JP; US
 DESIGNATED REGIONAL: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE
 SECTION:
 CA209002 Biochemical Methods
 CA203XXX Biochemical Genetics
 CA206XXX General Biochemistry
 CA213XXX Mammalian Biochemistry
 CA214XXX Mammalian Pathological Biochemistry
 IDENTIFIERS: colon cancer marker gene expression, diagnosis colon cancer marker gene expression, sequence colon specific gene expression human
 DESCRIPTORS:
 Gene,animal...
 Cln106; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
 Intestine... Intestine,neoplasm...
 colon; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
 Proteins,specific or class...
 CSG (colon-specific gene); method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
 Immunoassay...
 enzyme-linked immunosorbent assay; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
 cDNA sequences...
 for colon-specific gene expression in human
 Protein sequences...
 for colon-specific proteins in human
 Immunoassay...

immunoblotting; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
Immunoassay...
immunohistochem.; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
Nucleic acid hybridization...
in situ; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
Prognosis...
method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
Diagnosis...
mol.; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
Immunoassay...
radioimmunoassay; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
PCR(polymerase chain reaction)...
RT-PCR (reverse transcription-PCR); method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
Lung,neoplasm...
squamous cell carcinoma; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
CAS REGISTRY NUMBERS:
251099-15-7 amino acid sequence; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
251095-58-6 251095-59-7 251095-60-0 251095-61-1 251095-62-2
251095-63-3 251095-64-4 251099-13-5 251099-14-6 nucleotide sequence; method of diagnosing, monitoring, and staging colon cancer based on colon-specific gene expression
2/9/13 (Item 4 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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132001795 CA: 132(1)1795u PATENT
A novel method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
INVENTOR(AUTHOR): Yang, Fei; Macina, Roberto A.; Sun, Yongming
LOCATION: USA
ASSIGNEE: Diadexus Llc
PATENT: PCT International ; WO 9960160 A1 DATE: 19991125
APPLICATION: WO 99US10344 (19990512) *US 86212 (19980521)
PAGES: 40 pp. CODEN: PIXXD2 LANGUAGE: English CLASS: C12Q-001/68A; G01N-033/72B DESIGNATED COUNTRIES: CA; JP; US DESIGNATED REGIONAL: AT; BE ; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE
SECTION:
CA209002 Biochemical Methods
CA203XXX Biochemical Genetics
CA206XXX General Biochemistry
CA213XXX Mammalian Biochemistry
CA214XXX Mammalian Pathological Biochemistry
IDENTIFIERS: lung cancer marker gene expression, diagnosis lung cancer marker gene expression, sequence lung specific gene expression human
DESCRIPTORS:
Lung,neoplasm...
adenocarcinoma; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Immunoassay...
enzyme-linked immunosorbent assay; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
cDNA sequences...
for lung-specific gene expression in human
Protein sequences...
for lung-specific proteins in human
Immunoassay...
immunoblotting; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Immunoassay...

immunohistochem.; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Nucleic acid hybridization...
in situ; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Gene, animal...
Lngl01 and Lngl05 and Lngl07; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Proteins, specific or class...
LSG (lung-specific gene); method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Lung, neoplasm...
metastasis; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Lung... Lung, neoplasm... Prognosis...
method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Diagnosis...
mol.; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Immunoassay...
radioimmunoassay; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
PCR (polymerase chain reaction)...
RT-PCR (reverse transcription-PCR); method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
Lung, neoplasm...
squamous cell carcinoma; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
CAS REGISTRY NUMBERS:
208065-42-3 251314-72-4 amino acid sequence; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression
208065-40-1 232268-26-7 251314-64-4 251314-65-5 251314-67-7 251314-68-8 251314-70-2 nucleotide sequence; method of diagnosing, monitoring, and staging lung cancer based on lung-specific gene expression